

10/27/00
JCS-U.S. PTO

10-30-00

PTO/SB/05 (08-00)

Approved for use through 10/31/2002. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCEPlease type a plus sign (+) inside this box →

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UTILITY
PATENT APPLICATION
TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)

2. Applicant claims small entity status.
See 37 CFR 1.27.

3. Specification [Total Pages 37]
(preferred arrangement set forth below)

- Descriptive title of the invention
- Cross Reference to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to sequence listing, a table, or a computer program listing appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

4. Drawing(s) (35 U.S.C. 113) [Total Sheets 4]

5. Oath or Declaration [Total Pages 2]

- a. Newly executed (original or copy)
Copy from a prior application (37 CFR 1.63 (d))
(for continuation/divisional with Box 17 completed)
- b.
- i. **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s)
named in the prior application, see 37 CFR
1.63(d)(2) and 1.33(b).

6. Application Data Sheet. See 37 CFR 1.76

17. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

 Continuation Divisional Continuation-in-part (CIP)

of prior application No _____ / _____

Prior application information: Examiner _____

Group / Art Unit: _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

18. CORRESPONDENCE ADDRESS

 Customer Number or Bar Code Label

(Insert Customer No. or Attach bar code label here)

or Correspondence address below

Name	Frank Chau, Esq.			
Address	F. CHAU & ASSOCIATES, LLP			
	1900 Hempstead Turnpike, Suite 501			
City	East Meadow	State	New York	Zip Code
Country	USA	Telephone	516-357-0091	Fax 516-357-0092

Name (Print/Type)	Frank Chau	Registration No. (Attorney/Agent)	34,136
Signature			
		Date 10/27/00	

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231.

10/27/00
JCS-U.S. PTO
10915 U.S. PTO
10/27/00

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

FEE TRANSMITTAL

for FY 2001

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT (\$ 992.00)

Complete if Known

Application Number	
Filing Date	October 27, 2000
First Named Inventor	James R. Tranchina
Examiner Name	
Group Art Unit	
Attorney Docket No.	8002A-24

METHOD OF PAYMENT

1. The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number **50-0679**

Deposit Account Name **F. Chau & Associates, LLP**

Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

Applicant claims small entity status See 37 CFR 1.27

2. Payment Enclosed:

Check Credit card Money Order Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	710
106	320	206	180	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	
SUBTOTAL (1)		(\$ 710.00)			

2. EXTRA CLAIM FEES

	Extra Claims	Fee from below	Fee Paid
Total Claims	29	-20** = 9 x 18 =	162
Independent Claims	4	-3** = 1 x 80 =	80
Multiple Dependent		270 =	

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent
SUBTOTAL (2)		(\$ 242.00)		

*or number previously paid, if greater; For Reissues, see above

3. ADDITIONAL FEES

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for ex parte reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	40.00
146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR § 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	
Other fee (specify)					

Reduced by Basic Filing Fee Paid SUBTOTAL (3) (\$ 40.00)

SUBMITTED BY

Name (Print/Type)	Frank Chau	Registration No. (Attorney/Agent)	34,136	Telephone	(516) 357-0091
Signature				Date	10/27/00

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

CONSOLE WITH MONITOR AND WIRELESS RECEIVER

1. Technical Field

5 The present invention relates generally to vehicles and, in particular, to a console with an audio/video monitor and a wireless receiver for use in a vehicle.

2. Background Description

10 As cars have been continuously updated to include new and useful features for the enjoyment and/or utility of a driver and his or her passengers, devices generally found in the home have made their way into cars as optional features. Such features include the television, the video cassette recorder (VCR), the compact disk (CD) player, and the digital video disk (DVD) player. While these features 15 undoubtedly provide enjoyment and/or utility to the driver and passengers of a vehicle, the features are nonetheless troublesome to install and implement in a car. For example, 20 if the items are not factory installed, then a user must generally go to an installation shop and have the items installed into their vehicle. The installation involves wiring the devices to the vehicle to receiver power

therefrom, as well as coupling the devices to other existing systems of the vehicle other than the power system. For example, a vehicle owner may want a car mounted television to be coupled to the existing speaker system so that 5 passengers in the back of the vehicle (as well as any passengers in the front of the vehicle) can hear the corresponding audio.

Given the small confines of many vehicles, it may not be easy to integrate new equipment into the vehicle.

10 Moreover, the installation process itself may result in structural damage to the vehicle when an installer improperly dismantles and/or reassembles portions of the vehicle. This is particularly true for the wiring, which often has to run from the front of the car (where the fuse 15 bus and battery are located) to the middle and/or rear of the car.

With respect to overhead console mounted electronics, the above problems are compounded. This is due to a variety of reasons, including the fact that the overhead console is generally of limited space, and also because whatever space exists is generally overrun with wiring from existing 20 devices such as reading lights, garage door openers,

thermometers, and so forth. Further, the console, in being overhead, must be re-assembled carefully to avoid coming apart at an importune moment and potentially impeding the vision and/or concentration of the vehicle operator.

5 Thus, in the case of an overhead console having a television disposed therein, difficulties exist in wiring input devices (e.g., VCR) to the television as well as in wiring output devices (speakers) to the television.

10 Accordingly, there is a need for a console which allows for the minimum effort in installation in the vehicle, particularly with respect to wiring. Such a console could be preferably mounted overhead, or on any other interior surface of the vehicle.

15 **SUMMARY OF THE INVENTION**

The problems stated above, as well as other related problems of the prior art, are solved by the present invention, a console with an audio/video monitor and a wireless receiver.

20 According to a first aspect of the invention, there is provided a console for a vehicle. The console includes an assembly housing adapted to mount against an interior

surface of the vehicle. A wireless receiver, houseable in the assembly, is adapted to receive wireless signals from at least one video input source. A display device, houseable in the assembly and operatively coupled to the wireless receiver, is adapted to reproduce the wireless signals.

According to a second aspect of the invention, the wireless signals are at least one of radio frequency, infrared, and optical signals.

According to a third aspect of the invention, the at least one input source includes circuitry for producing video signals and is at least one of a video cassette player (VCP), a television, a compact disk (CD) player, a digital video disk (DVD) player, and a video game player, and said at least one input source comprises a wireless transmitter for transmitting the wireless signals.

According to a fourth aspect of the invention, the console further includes a wireless joystick, detachable from the console.

According to a fifth aspect of the invention, the wireless signals are transmitted through one of a packet-switched wireless network and a circuit-switched wireless network.

According to a sixth aspect of the invention, the console further includes a processor adapted to execute applications associated with the console, and an operating system adapted to manage the applications associated with
5 the console.

According to a seventh aspect of the invention, the console further includes a web browser adapted to interact with one of the Internet and the World Wide Web.

According to an eighth aspect of the invention, the
10 browser is adapted to access the World Wide Web using wireless Application Protocol (WAP).

According to a ninth aspect of the invention, the console further includes at least one of a wireless keyboard and a wireless mouse, the wireless keyboard and the wireless mouse being detachable from the console.
15

According to a tenth aspect of the invention, the console further includes a voice recognition system adapted to control the console and functions associated therewith.

According to an eleventh aspect of the invention, the
20 console further includes signal processing facilities adapted to perform at least one of signal processing and signal conversion, with respect to the wireless signals.

According to a twelfth aspect of the invention, the console further includes a text-to-speech system.

According to a thirteenth aspect of the invention, a vehicle occupant sends media to the console for display via a wireless signal from one of a personal digital assistant (PDA), a hand held personal computer (PC), and a smart phone.

According to a fourteenth aspect of the invention, the console further includes a wireless transmitter.

According to a fifteenth aspect of the invention, the display device is mounted in the console in one of a non-fixed configuration and a fixed configuration.

According to a sixteenth aspect of the invention, the display device employs one of a liquid crystal display (LCD), light emitting diodes (LEDs), and a gas plasma.

According to a seventeenth aspect of the invention, the liquid crystal display is based upon one of active matrix technology and passive matrix technology.

According to an eighteenth aspect of the invention, the display device employs touch screen technology.

According to a nineteenth aspect of the invention, the wireless receiver is disposed within the display device.

According to a twentieth aspect of the invention, the wireless receiver is disposed external to the display device.

According to a twenty first aspect of the invention,
5 the wireless signals include at least one of audio and video.

According to a twenty second aspect of the invention,
the wireless receiver includes at least one of a
10 photosensitive device and an antenna.

According to a twenty third aspect of the invention,
the wireless transmitter includes at least one of an optical
transmission device and an antenna.

According to a twenty fourth aspect of the invention,
15 the assembly housing is adapted to mount against one of an
overhead surface of the vehicle and a roof of the vehicle.

According to a twenty fifth aspect of the invention,
there is provided a console for a vehicle. The console
includes an assembly housing adapted to mount against an
20 interior surface of the vehicle. A display device,
houseable in said assembly, is adapted to reproduce wireless
signals. The display device includes a wireless receiver,

disposed in the display device, adapted to receive the wireless signals from at least one input source.

According to a twenty sixth aspect of the invention, there is provided a console for a vehicle. The console includes an assembly housing adapted to mount against an interior surface of the vehicle. A display device, houseable in the assembly, is adapted to reproduce wireless signals. A wireless transceiver, operatively coupled to the display device, is adapted to send and receive the wireless signals from at least one input source.

According to a twenty seventh aspect of the invention, there is provided a console for a vehicle. The console includes an assembly housing adapted to mount against an interior surface of the vehicle. A wireless receiver, houseable in the assembly, is adapted to receive wireless signals from at least one video input source. A display device, houseable in the assembly and operatively coupled to the wireless receiver, is adapted to reproduce the wireless signals. A wireless transmitter is adapted to transmit wireless control signals to the wireless receiver, the wireless control signals for configuring at least one of controls and applications on the display device.

According to a twenty eighth aspect of the invention, the wireless transmitter is adapted to be detachable from the console.

According to a twenty ninth aspect of the invention, 5 the wireless transmitter includes a processor and associated memory for executing and storing programs, respectively.

These and other aspects, features and advantages of the present invention will become apparent from the following detailed description of preferred embodiments, which is to 10 be read in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating the elements of a console 100 according to an illustrative embodiment of the 15 invention;

FIG. 2 is a diagram illustrating a local input device 106 interacting with the wireless receiver 102 based on optical and/or RF transmission, according to an illustrative embodiment of the invention;

20 FIG. 3 is a block diagram illustrating a console 300 according to an illustrative embodiment of the invention; and

FIG. 4 is a block diagram illustrating a console 400 according to another illustrative embodiment of the invention.

5

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

It is to be understood that the present invention may be implemented in various forms of hardware, software, firmware, special purpose processors, or a combination thereof. Preferably, the present invention is implemented as a combination of both hardware and software, the software being an application program tangibly embodied on a program storage device. The application program may be uploaded to, and executed by, a machine comprising any suitable architecture. Preferably, the machine is implemented on a computer platform having hardware such as one or more central processing units (CPU), a random access memory (RAM), and input/output (I/O) interface(s). The computer platform also includes an operating system and microinstruction code. The various processes and functions described herein may either be part of the microinstruction code or part of the application program (or a combination thereof) which is executed via the operating system. In

10
15
20

addition, various other peripheral devices may be connected to the computer platform such as an additional data storage device.

It is to be further understood that, because some of the constituent system components depicted in the accompanying Figures may be implemented in software, the actual connections between the system components may differ depending upon the manner in which the present invention is programmed. Given the teachings herein, one of ordinary skill in the related art will be able to contemplate these and similar implementations or configurations of the present invention.

To facilitate a clear understanding of the present invention, a brief description of the invention will now be given, followed by definitions of terms used herein. As noted above, the invention is directed to a console with a monitor and a wireless receiver. It is to be noted that the terms "monitor" and "display device" are used interchangeably herein. According to the invention, the wireless receiver receives wireless signals and provides the wireless signals to the monitor for display, as well as to other, optional equipment (e.g., speakers). The wireless

receiver may be located within or external to the display device. The device from which the wireless receiver receives the wireless signals is interchangeably referred to herein as the "input device", the "transmitting device", or 5 the "source device".

The wireless signals can be any type of wireless signal including, but not limited to, radio frequency, infrared, and optical signals. For radio frequency signals, an antenna may be used to enhance reception. It is to be noted 10 that the current transmission capability (bandwidth) of infrared signals is approximately 1.5 to 2.0 Mbits/sec, with a maximum projected bandwidth of 16Mbits/sec.

The wireless signals may be transmitted through a packet-switched wireless network or a circuit-switched 15 wireless network. In a packet-switched network, there is no single, unbroken connection between sender and receiver; instead, the information is broken into small packets and sent over many different routes at the same time. The packets are then reassembled at the receiving end. In 20 contrast, in a circuit-switched network, once a connection is made, that part of the network is dedicated only to that single connection.

FIG. 1 is a block diagram illustrating the elements of a console 100 according to an illustrative embodiment of the invention. The console 100 is ultimately installed in a vehicle 160. The console 100 includes a wireless receiver 102, a display device 104, a local input device(s) 106, a remote input device(s) 108, facilities for performing signal processing and/or signal conversion 110 (hereinafter "signal processing/conversion facilities"), a processor (CPU) 112, an operating system 114, a web browser 116, a wireless transmitter 118, a voice recognition system 120, a wireless keyboard 122, a wireless mouse 124, a wireless joystick 126, a wireless microphone 127, a text-to-speech system 130, and an antenna 128. Some of the elements shown in FIG. 1 may be included in the console, in compartments comprised therein (not shown), or they may be separate from the console but nonetheless intended to interact with the console. The elements shown in FIG. 1 may be connected by one or more buses 130.

All of the elements shown in FIG. 1 except for the 20 remote input device 108 are included in the vehicle 140. The remote input device 108 is external to the vehicle 140.

It is to be appreciated that the display device is not

limited to any particular kind of display device.

Accordingly, display devices may be used which include, but are not limited to, liquid crystal displays (LCDs), light emitting diodes (LEDs), and gas plasma. It is to further

5 appreciated that any variations of the aforementioned types of displays may be used. For example, with respect to

liquid crystal displays, active matrix (e.g., thin film transistor) technology or passive matrix (e.g., dual scan)

technology may be employed. The display device may also

10 employ touch screen technology, so that users can interact with the console by either touching the screen or placing a specified device (e.g., electrostatic pen) near the screen.

In a preferred embodiment of the invention, a liquid crystal display is employed which uses active matrix technology.

15 It is to be noted that the wireless receiver may receive the wireless signals from many sources. For example, the local input device(s) 106, includes, but is not limited to, a video cassette player (VCP), a television, a compact disk (CD) player, a digital video disk (DVD) player, 20 a personal computer (PC), a pager, and a video game player.

The wireless receiver may also receive the wireless signals from any remote wireless device. Thus, the remote

input device(s) 108 includes, but is not limited to, a satellite (or satellite network) that provides multimedia content, or any other remote wireless device or network (e.g., global positioning system (GPS), cellular, and so forth). Given the prevalent use of satellites for the delivery of multimedia content (e.g., movies, telephone service, Internet and World Wide Web (the Web) content (e.g., streaming video), and so forth), this capability provides a seemingly endless supply of varying media type's to a vehicle, with the significant advantage of not requiring additional, on-board equipment such as VCPs, CD players, DVD players, televisions, and so forth. By not requiring the installation of an input device(s) in the vehicle, insurance costs are reduced should the vehicle be stolen.

In any event, each input device (i.e., local input device(s) 106 and remote input device(s) 108) should have a wireless transmitter 150 from which the wireless signals are transmitted.

FIG. 2 is a diagram illustrating a local input device 106 interacting with the wireless receiver 102 based on optical and/or RF transmission, according to an illustrative

embodiment of the invention. The local input device 106 includes an optical transmitting device 212 (e.g., an LED, a laser, and so forth) and an antenna 214. The wireless receiver 102 includes a photosensitive device 252 (e.g., a phototransistor, a solar cell(s), a SEED (self-optic effect device), and so forth) and an antenna 254. The optical transmitting device 212 and the photosensitive device 254 are used for wireless transmission and reception of optical signals, respectively. The antenna 214 and the antenna 254 are used for wireless transmission and reception of RF signals, respectively.

In the case of wireless optical transmission, the optical transmitting device 212 wirelessly transmits optical (digital) signals to the wireless receiver 102 by pulsing its light output (e.g., off equals a zero (0) and on equals a one (1)). The photosensitive device 252 in the wireless receiver detects the optical signals wirelessly transmitted by the optical transmitting device 212.

The wireless receiver 102 also includes a digital-to-analog converter (DAC) 256 for converting the digital signals into analog signals. The analog signals are then provided to the display device 104 either directly or after

processing by the signal processing/conversion facilities

110. Such processing by the signal processing/conversion facilities 110 may include, for example, filtering of the analog signal.

5 It is to be appreciated that the processor 112 may be used to control the functions of the DAC 256 and the signal processing/conversion facilities 110. It is to be further appreciated that the DAC 256 may be separate from (as shown) or part of the signal processing/conversion facilities 110.

10 The local input source 106 in the example of FIG. 2 may be a compact disk (CD) player, a digital video disk (DVD) player, and so forth. In the case of, for example, a DVD player, the digital output therefrom is transmitted wirelessly from the optical transmitting device 212 to the photosensitive device 252. The DAC 256 may then be used to generate three separate analog signals (left audio channel, right audio channel, and video). Alternatively, the DAC 256 may simply convert the wireless digital signal to a composite analog signal, which is then separated by the signal processing/conversion facilities 110 (when the DAC 256 is separate from the signal processing/conversion facilities 110).

The preceding description regarding the functions of the DAC 256 and the signal processing/conversion facilities 110 may also be applied in the case of RF transmission. In such a case, the transmission and reception functions of the 5 optical transmitting device 212 and the photosensitive device 252 are replaced by those of the antennas 214 and 254, respectively. That is, the antenna 214 is used to wirelessly transmit an RF signal which is then received by the antenna 254. A modulator/demodulator may be included or 10 associated with the antennas 214 and 254 to perform such functions as are known to one of ordinary skill in the related art.

In another embodiment of the invention, a DAC and signal processing/conversion facilities may be located in 15 the local input device 106, and controlled by a programmable processor therein. The processor may be then programmed to function with the elements of the wireless receiver 102. Given the teachings of the invention provided herein, one of ordinary skill in the related art will contemplate these and 20 other optical transmitting devices, photosensitive devices, and configurations of the elements of the invention which allow for the transmission and reception of any type of

wireless signal (e.g., analog and digital) and appropriate processing/conversion to facilitate reproduction of the content of the wireless signals provided by the local input device 106.

5 It is to be appreciated that the console of the present invention may include more than one display device 104, and more than one wireless receiver 102. In the case of more than one display device, two or more different sources (e.g., DVD player, satellite) may be used to feed each of
10 the monitors.

One of the primary advantages of the invention is that input devices (local input device(s) 106 and remote input device(s) 108) can be located in the console 100 or at any other location within range of the wireless receiver 102.
15 As noted above, this may even include a satellite positioned in the atmosphere.

According to one embodiment of the invention, the local input device(s) 106 (e.g., VCP, CD player, and/or DVD player) is located near the driver to enable driver control of the media content watched by passengers (e.g., children, teenagers). Alternatively, the driver can be left to concentrate on the task of driving, with the passengers able
20

to load media into a local input device(s) 106 located at the middle/back of the vehicle (not within the console 100 or too proximate to the console 100).

The signal processing/conversion facilities 110 may perform such processing/conversion prior to the wireless signals being provided to the display device 104 or any other device (e.g., speakers). The signal processing/conversion facilities 110 may include, but are not limited to, Digital Signal Processors (DSPs), and facilities for performing encoding/decoding, encrypting/decrypting, compressing/decompressing, analog-to-digital conversion (ADC), digital-to-analog conversion (DAC), and error correction. Such error correction may include, but is not limited to, Cyclic Redundancy Checking (CRC), Error Correction Code or Error Checking and Correcting (ECC), checksum, and so forth. With respect to encoding/decoding, encrypting/decrypting, and compressing/decompressing, the former of each pair is performed by the input device (local input device(s) 106 and/or remote input device(s) 108) and the latter is performed by the wireless receiver 102. Of course, bi-directional transmissions may also be employed by the

console of the invention. For example, the wireless receiver 102 may communicate with the input device(s) (106 and/or 108) for control purposes. In such a case, the input device(s) (106 and/or 108) may employ a wireless transceiver instead of simply a wireless transmitter, and the wireless receiver 102 and the wireless transmitter 118 of the console 100 may be replaced by a wireless transceiver. Such a wireless transceiver may be either half duplex or full duplex.

10 In many cases, the facilities described above may be implemented by one or more codecs. In other cases, additional and/or other circuitry may be required.

15 It is to be noted that the wireless signals may be encoded to prevent interference between different input devices in the vehicle 160 and between an input device in the vehicle 160 and an input device in a proximate vehicle. In such a case, the transmitter 150 of the input device may include facilities for transmitting the wireless signals that are based upon, for example, Spread Spectrum technology.

20 It is to be appreciated that the signal processing/conversion facilities 110 described above with

respect to the console may be located separate from or as part of the wireless receiver 102. It is to be further appreciated that one of ordinary skill in the related art will contemplate these and various other facilities for performing signal processing and/or signal conversion, while maintaining the spirit and scope of the invention.

The processor 112 may be one or more processors. The processor may be used to control and/or interact with any of the elements associated with the console. The operating system 114 may be a full blown operating system (including, but not limited to, LINUX, WINDOWS 95, 98, 2000, and so forth). Alternatively, the operating system 114 may be a streamlined operating system (including, but not limited to WINDOWS CE).

The browser 116 displays Internet and/or World Wide Web (the Web) content, and allows the user to interact with the same. The browser 116 may be any browser which is capable of interpreting a markup language (including, but not limited to, Wireless Markup Language (WML), General Markup Language (GML), Standard Generalized Markup Language (SGML), Hypertext Markup Language (HTML), Extensible Markup Language (XML), and so forth), other computer software language,

and/or information sent via a protocol (including, but not limited to HyperText Transfer Protocol (HTTP), File Transfer Protocol (FTP), Transmission Control Protocol (TCP), Internet Protocol (IP) and so forth).

5 According to an illustrative embodiment of the invention, the browser 116 accesses the web using Wireless Application Protocol (WAP). WAP is a specification for a set of communication protocols that standardize the way in which wireless devices can be used for Internet access. WAP
10 uses what is referred to as the Wireless Markup Language (WML), which is a streamlined version of HTML for small screen displays. WAP also uses WMLScript, which is a compact JavaScript-like language. WAP also supports handheld input methods such as a keypad and voice
15 recognition. It is to be appreciated that WAP is device independent.

 The wireless transmitter 118 transmits control and/or other information to the input device(s) (106 and/or 108) and/or transmits audio to a speaker(s) having a wireless receiver 165 (e.g., wireless speakers/wireless headphones 170). In the case of wireless headphones 170, the display device 104 may be viewed by a vehicle passenger without the
20

other passengers and/or driver hearing the accompanying audio. In a preferred embodiment of the invention, wireless speakers 170, each having a wireless receiver 165 for receiving wireless signals from the wireless transmitter 118, are employed to minimize the wiring in the vehicle.

5 A wireless transmitter 199 may be employed by a vehicle passenger to wirelessly transmit signals for configuring controls or applications on the display. Such signals may be transmitted to the display device 104 for receipt by the wireless receiver 102. The wireless transmitter 199 may 10 include a processor and associated memory for executing and storing programs, respectively. The programs may be used to control many different types of devices including some or all of the input devices 106 and other electronic devices 15 such as, for example, a cellular telephone. In the latter case, the wireless transmitter 199 may be used by a user to control the cellular telephone, which may be built into the vehicle. In a preferred embodiment of the invention, the wireless transmitter 199 is operatively coupled to the 20 controls of the accessories commonly found in the dashboard of an automobile such as, for example, climate control and the controls for the radio and/or stereo. The wireless

transmitter 199 transmits control configuration signals to the wireless receiver 102 for display on the display device 104. The display device 104, in turn, displays a plurality of control modules or devices, e.g., the keypad of a 5 cellular phone and controls for selecting radio channels for selection via touch screen controls displayed on the display device 104. Given the teachings of the invention provided herein, one of ordinary skill in the related art will contemplate these and various other applications for the 10 wireless transmitter 199.

The voice recognition system 120, the wireless keyboard 122, the wireless mouse 124, the wireless joystick 126, and the wireless microphone 127 are used to input information, control the console and functions corresponding thereto, and/or play a video game. It is to be noted that the 15 wireless microphone may be part of, or separate from, the voice recognition system 120. The console 100 may include a compartment or housing assembly for housing the wireless keyboard 122, the wireless mouse 124, the wireless joystick 126, and the wireless microphone 127, which may be removed 20 therefrom when in use.

The text-to-speech (tts) system 130 may perform various

functions with respect to the console 100, as is readily apparent to one of ordinary skill in the related art. For example, the tts system 130 may be used to convert WEB books and/or other textual media (e.g., newspapers, magazines, stock quotes, weather reports, and so forth) to speech for reproduction by, for example, wireless headphones or a speaker(s) (either existing, special purpose, or included in the display device 104).

The invention facilitates meetings on the go, where a group of people in a vehicle such as a limousine, van, and so forth, can be shown a slide or moving picture show by having the same beamed into the display through the wireless receiver. Many current electronic devices such as personal digital assistants (PDAs) have the ability to transmit information via infrared signals (e.g., PALM PILOT). Thus, an individual in the vehicle can send information to the display for the other individuals in the vehicle to see. The transmitting device in this case can be any device having the capability of transmitting wireless signals, including, but not limited to, a PDA, a hand held personal computer (PC), a laptop PC, a smart phone, and so forth. Such a device may be considered to be encompassed by either

local 106 and/or remote input device 108.

The preceding description of the console has primarily focused on features that may be included in the console to enhance the operation thereof. A description of mounting arrangements for the console will now be given.

In a preferred embodiment of the present invention, the display device 104 of the console is mounted in a flip fashion. That is, the display device 104 is flipped-down when in use, and flipped-up when not in use. If the display device 104 is mounted flush with the console, it may be disguised should the car be broken into. Moreover, items such as a sunglass holder may be mounted at the outer face of the console (the face opposing the display portion thereof) to further disguise the display device.

Alternatively, the display device may be mounted prominently in the console so as to constantly be in the view of the occupants of the vehicle.

FIGS. 3 and 4 illustrate various configurations of a console according to the invention. The Figures are shown with the minimum number of elements, so that the mounting arrangement of the display is emphasized.

FIG. 3 is a block diagram illustrating a console 300

according to an illustrative embodiment of the invention.

In the embodiment of FIG. 3, the display device is mounted overhead in a flip configuration. The console 300 includes a wireless receiver 310 and a display device 312. The display device 312 is mounted so as to flip down (e.g., 90 degrees) along the y-axis.

FIG. 4 is a block diagram illustrating a console 400 according to another illustrative embodiment of the invention. In the embodiment of FIG. 4, the display device is mounted overhead in a non-flip configuration. The console 400 includes a wireless receiver 410 and a display device 412. Although FIGs. 3 and 4 illustrate the console being mounted against the interior roof of the vehicle, the console may be mounted against any interior surface(s) of the vehicle including, for example, the front portion of the vehicle or a combination of the roof and the front portion of the vehicle.

It is to be noted that, in addition to the above described elements, the console according to the invention may include any of the usual items found in a console for a vehicle, including, but not limited to, a compartment for holding/protecting sunglasses, another compartment for

holding/protecting a garage door opener, yet another compartment for general storing/protecting of items (e.g., keys, license, registration, and so forth), a reading/map lamp assembly, a clock, and a compass. Moreover, the 5 console may include controls for other elements/systems of the vehicle such as controls for the air conditioning and heating systems and the audio system.

Although the illustrative embodiments have been described herein with reference to the accompanying 10 drawings, it is to be understood that the present system and method is not limited to those precise embodiments, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and 15 modifications are intended to be included within the scope of the invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A console for a vehicle, comprising:

an assembly housing adapted to mount against an

5 interior surface of the vehicle;

a wireless receiver, houseable in said assembly,

adapted to receive wireless signals from at least one video

input source; and

a display device, houseable in said assembly and

10 operatively coupled to said wireless receiver, adapted to

reproduce the wireless signals.

2. The console according to claim 1, wherein the

wireless signals are at least one of radio frequency,

15 infrared, and optical signals.

3. The console according to claim 1, wherein said at

least one input source includes circuitry for producing

video signals and is at least one of a video cassette player

20 (VCP), a television, a compact disk (CD) player, a digital

video disk (DVD) player, and a video game player, and said

at least one input source comprises a wireless transmitter for transmitting the wireless signals.

4. The console according to claim 3, further
5 comprising a wireless joystick, detachable from said
console.

5. The console according to claim 1, wherein the
wireless signals are transmitted through one of a packet-
10 switched wireless network and a circuit-switched wireless
network.

6. The console according to claim 1, further
comprising:
15 a processor adapted to execute applications associated
with said console; and
an operating system adapted to manage the applications
associated with said console.

20 7. The console according to claim 1, further
comprising a web browser adapted to interact with one of the
Internet and the World Wide Web.

8. The console according to claim 6, wherein said browser is adapted to access the World Wide Web using wireless Application Protocol (WAP).

5 9. The console according to claim 1, further comprising at least one of a wireless keyboard and a wireless mouse, said wireless keyboard and said wireless mouse being detachable from said console.

10 10. The console according to claim 1, further comprising a voice recognition system adapted to control said console and functions associated therewith.

15 11. The console according to claim 1, further comprising signal processing facilities adapted to perform at least one of signal processing and signal conversion, with respect to the wireless signals.

20 12. The console according to claim 11, further comprising a text-to-speech system.

13. The console according to claim 1, wherein a vehicle occupant sends media to said console for display via a wireless signal from one of a personal digital assistant (PDA), a hand held personal computer (PC), and a smart phone.

5

14. The console according to claim 1, further comprising a wireless transmitter.

10 15. The console according to claim 1, wherein said display device is mounted in said console in one of a non-fixed configuration and a fixed configuration.

15 16. The console according to claim 1, wherein said display device employs one of a liquid crystal display (LCD), light emitting diodes (LEDs), and a gas plasma.

20 17. The console according to claim 16, wherein said liquid crystal display is based upon one of active matrix technology and passive matrix technology.

18. The console according to claim 16, wherein said display device employs touch screen technology.

19. The console according to claim 1, wherein said 5 wireless receiver is disposed within said display device.

20. The console according to claim 1, wherein said wireless receiver is disposed external to said display device.

10 21. The console according to claim 1, wherein the wireless signals comprise at least one of audio and video.

15 22. The console according to claim 1, wherein said wireless receiver comprises at least one of a photosensitive device and an antenna.

20 23. The console according to claim 3, wherein said wireless transmitter comprises at least one of an optical transmission device and an antenna.

24. The console according to claim 1, wherein said assembly housing is adapted to mount against one of an overhead surface of the vehicle and a roof of the vehicle.

5 25. A console for a vehicle, comprising:
an assembly housing adapted to mount against an interior surface of the vehicle; and
a display device, houseable in said assembly, adapted to reproduce wireless signals, said display device
10 comprising:
a wireless receiver, disposed in said display device, adapted to receive the wireless signals from at least one input source.

15 26. A console for a vehicle, comprising:
an assembly housing adapted to mount against an interior surface of the vehicle;
a display device, houseable in said assembly, adapted to reproduce wireless signals; and
20 a wireless transceiver, operatively coupled to said display device, adapted to send and receive the wireless signals from at least one input source.

27. A console for a vehicle, comprising:
an assembly housing adapted to mount against an
interior surface of the vehicle;
a wireless receiver, houseable in said assembly,
5 adapted to receive wireless signals from at least one video
input source;
a display device, houseable in said assembly and
operatively coupled to said wireless receiver, adapted to
reproduce the wireless signals; and
10 a wireless transmitter, adapted to transmit wireless
control signals to the wireless receiver, the wireless
control signals for configuring at least one of controls and
applications on the display device.

15 28. The console according to claim 27, wherein said
wireless transmitter is adapted to be detachable from said
console.

20 29. The console according to claim 27, wherein said
wireless transmitter comprises a processor and associated
memory for executing and storing programs, respectively.

CONSOLE WITH MONITOR AND WIRELESS RECEIVER

Abstract

5 There is provided a console for a vehicle. The console includes an assembly housing adapted to mount against an interior surface of the vehicle. A wireless receiver, houseable in the assembly, is adapted to receive wireless signals from at least one input video source. A display device, houseable in the assembly and operatively coupled to the wireless receiver, is adapted to reproduce the wireless signals. The wireless signals are at least one of radio frequency, infrared, and optical signals. The console may further include a processor adapted to execute applications associated with the console, and an operating system adapted to manage the applications associated with the console. The console may also include a web browser adapted to interact with one of the Internet and the World Wide Web. The console may also further includes signal processing facilities adapted to perform at least one of signal processing and signal conversion, with respect to the wireless signals.

10

15

20

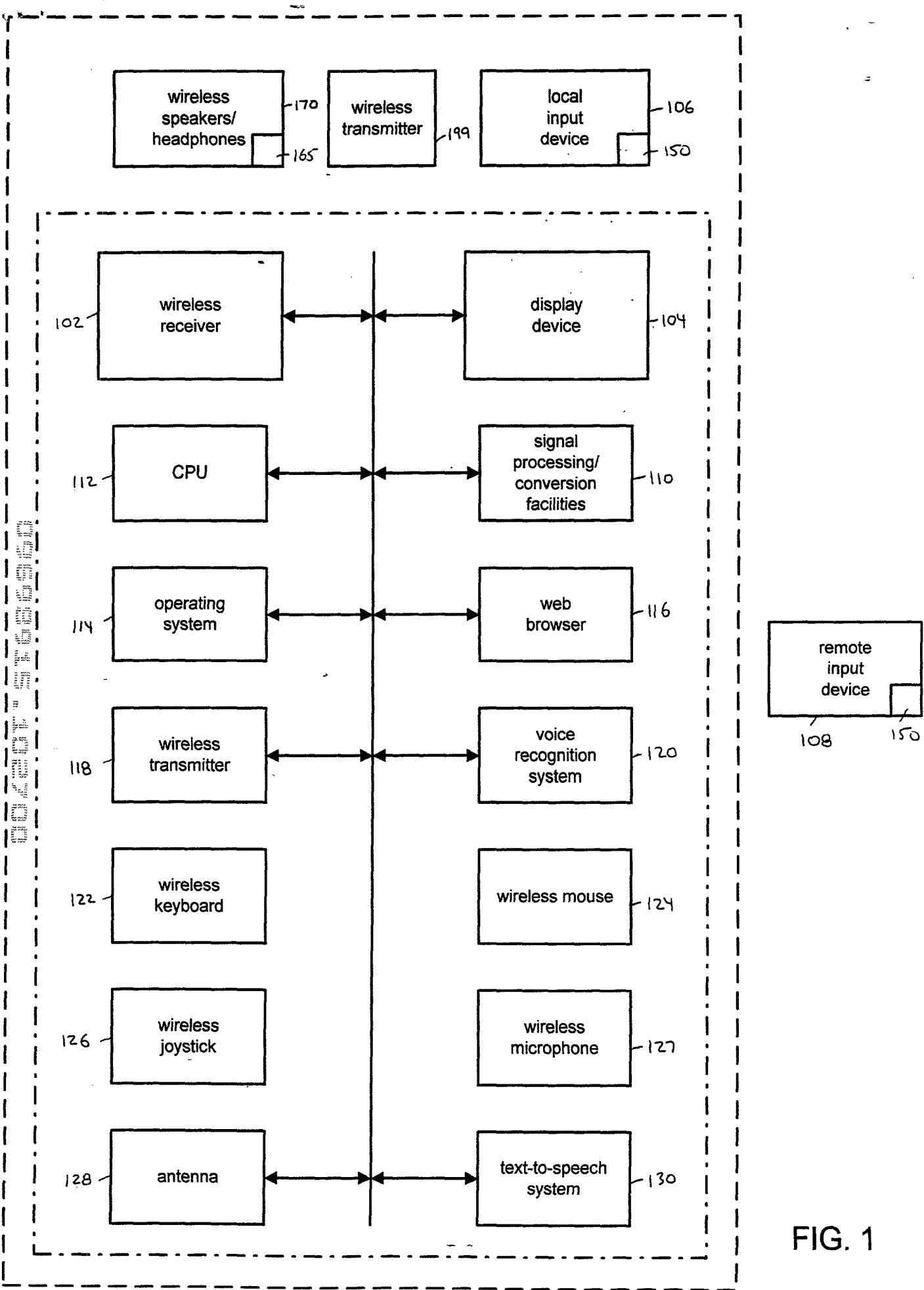


FIG. 1

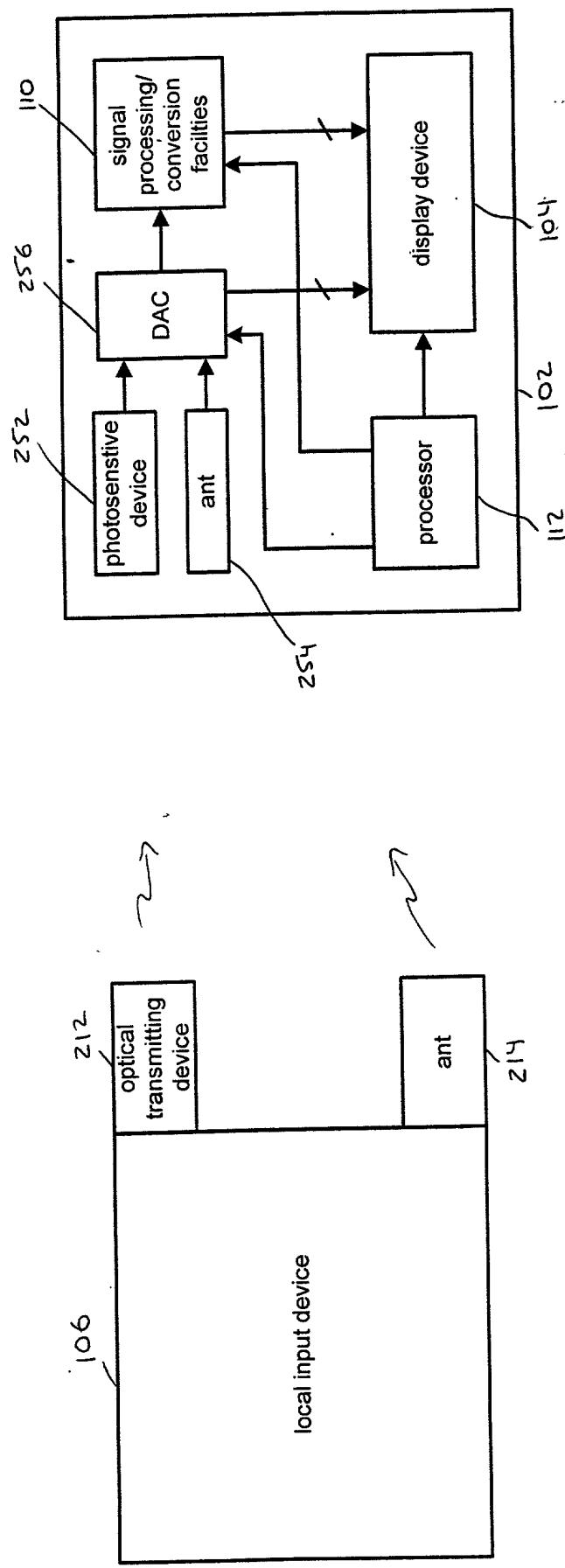


FIG. 2

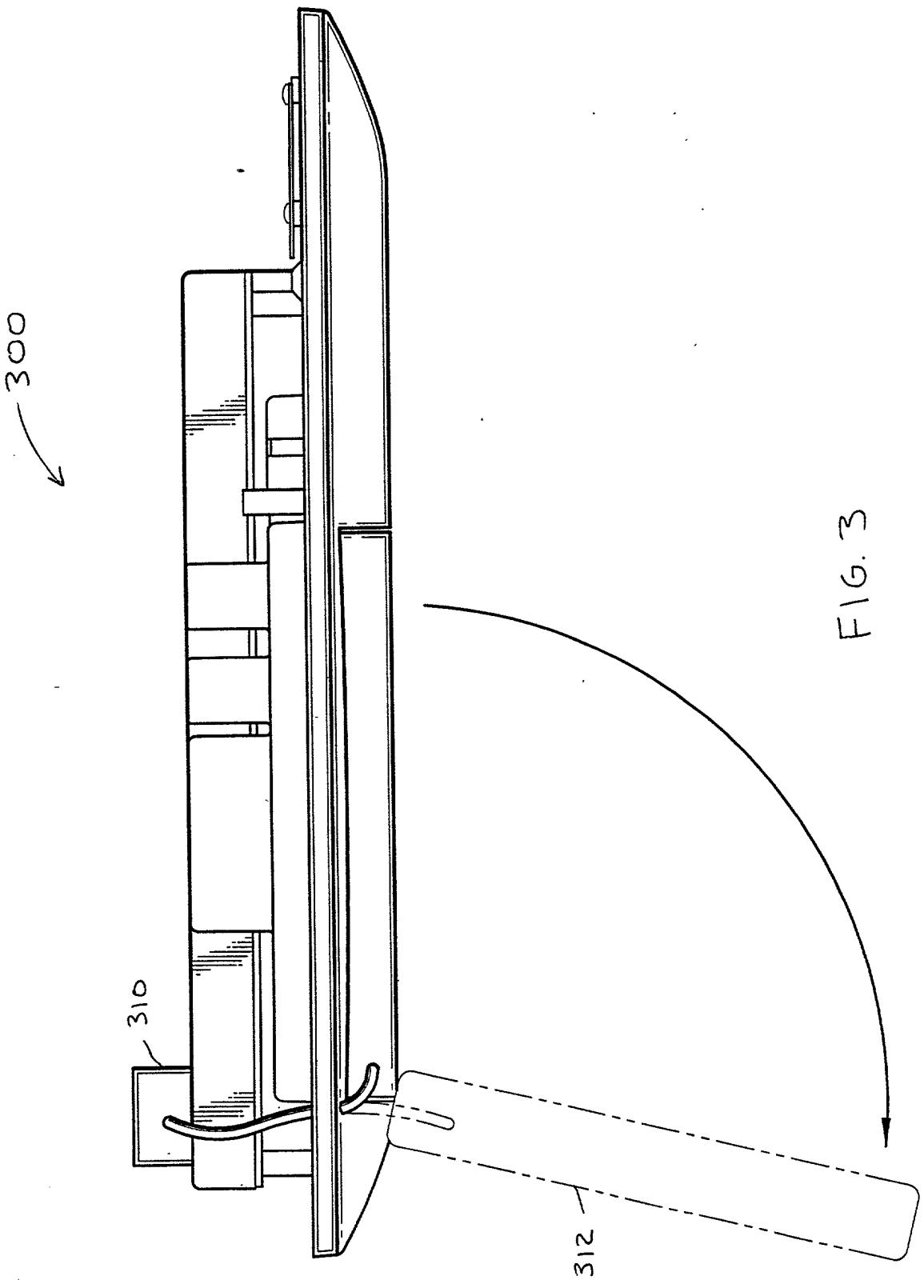
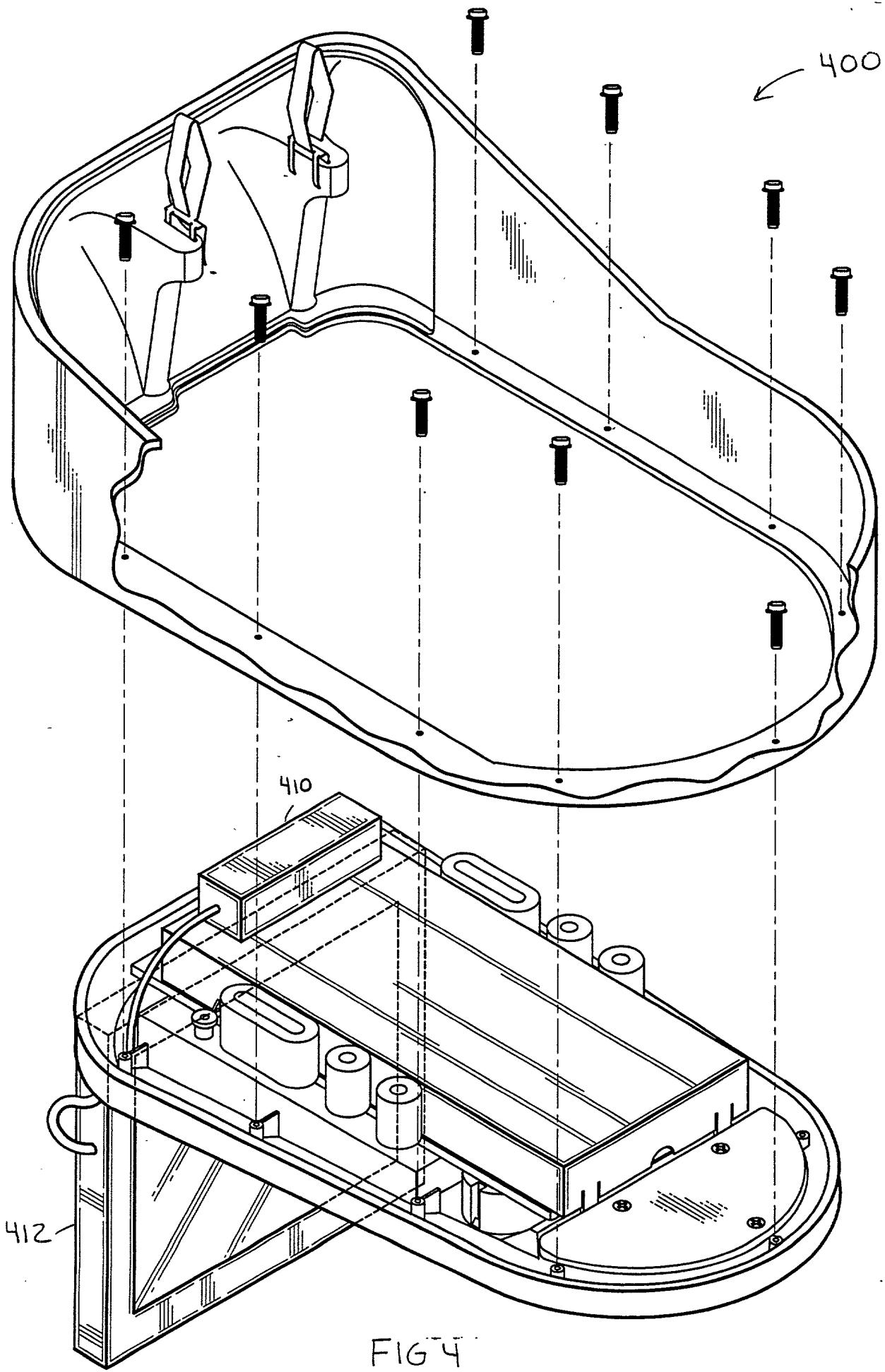


FIG. 3



DECLARATION

AS A BELOW NAMED INVENTOR, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe that I am the original, first and sole (*if only one name is listed below*), or an original, first and joint inventor (*if plural names are listed below*), of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE: CONSOLE WITH MONITOR AND WIRELESS RECEIVER

the specification of which either is attached hereto or indicates an attorney docket no. 8002A-24, or:

was filed in the U.S. Patent & Trademark Office on _____ and assigned Serial No. _____,

and (*if applicable*) was amended on _____,

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability and to the examination of this application in accordance with Title 37 of the Code of Federal Regulations §1.56. I hereby claim foreign priority benefits under Title 35, U.S. Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States, or §119(e) of any United States provisional application(s), listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Priority Claimed:

Yes [] No []

(Application Number) (Country) (Day/Month/Year filed)

(Application Number) (Country) (Day/Month/Year filed) Yes [] No []

I hereby claim the benefit under Title 35, U.S. Code, §120, of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, U.S. Code, §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, The Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial Number) (Filing Date) (STATUS: patented, pending, abandoned)

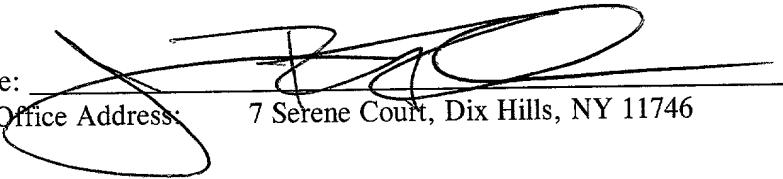
(Application Serial Number) (Filing Date) (STATUS: patented, pending, abandoned)

I hereby appoint the following attorneys: **FRANK CHAU**, Reg. No. 34,136; and **JAMES J. BITETTO**, Reg. No. 40,513; **FRANK V. DeROSA**, Reg. No. 43,584; **GASPARE J. RANDAZZO**, Reg. No. 41,528; and **SUSAN PAIK**, Reg. No. 46,347, each of them of **F. CHAU & ASSOCIATES, LLP**, 1900 Hempstead Turnpike, Suite 501, East Meadow, New York 11554 to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application, with full power of appointment and with full power to substitute an associate attorney or agent, and to receive all patents which may issue thereon, and request that all correspondence be addressed to:

Frank Chau, Esq.
F. CHAU & ASSOCIATES, LLP
1900 Hempstead Turnpike, Suite 501
East Meadow, New York 11554
Area Code: 516-357-0091

I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST OR SOLE INVENTOR: James R. Tranchina Citizenship USA

Inventor's signature: 

Residence & Post Office Address: 7 Serene Court, Dix Hills, NY 11746

Date: 26 Oct 00